Amendment and Response under 37 C.F.R. 1.116
Applicant: Renato J. Recio et al.
Serial No.: 09/980,760
Filed: April 15, 2002
Docket No.: 10003629-2 (H300.136.101)
Title: CONGESTION MANAGEMENT IN DISTRIBUTED COMPUTER SYSTEM

REMARKS

The following remarks are made in response to the Final Office Action mailed December 17, 2004. Claims 2-25 were rejected. Claim 26 has been added. Claims 2-26 remain pending in the application and are presented for reconsideration and allowance.

Claim Rejections under 35 U.S.C. § 102

The Examiner rejected claims 2-5, 10-12, 14-17, and 22-24 under 35 U.S.C. §102(b) as being anticipated by Chiussi et al., U.S. Patent No. 5,701,292.

Applicants respectfully submit that the Chiussi et al. Patent does not teach or suggest the invention of independent claims 2 and 14. Claim 2 recites a distributed computer system including a congestion control mechanism responding to the detected congestion by multiplicatively decreasing the variable injection rate. Independent claim 14 recites a method of controlling congestion in a distributed computer system including multiplicatively decreasing the variable injection rate in response to the detected congestion. Applicants submit that the Chiussi et al. Patent fails to disclose these limitations.

The Chiussi et al. Patent discloses a method and apparatus for controlling the data transfer rates of data sources in an asynchronous transfer mode-based network that utilizes maximum and minimum data transfer rates of sources in the network. A switch instructs data sources within the network to modify their data transfer rates by detecting potential congestion and congested states. (Abstract). Each data source also transmits an identifier or address to a switch 1 which identifies it from every other data source in the network. The data source 1, 2, ... n periodically sends an electronic code or RM cell to the switch 1. Subsequently, the switch 1 will return an electronic code or RM cell to each data source. The RM cell, among other things, contains information regarding the data transfer rate of each data source. When an RM cell is sent by data source 1, 2, ...n to the switch 1, the RM cell contains data transfer rate information regarding the data transfer or bit rate of the data source. When the RM cell is sent by the switch 1 to a data source 1, 2, ...n, the RM cell contains data transfer rate information that instructs the data source to either increase or decrease its data transfer rate by a specific amount or instructs the data source to operate at a specific transfer rate. (Column 3, lines 47-65).

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The Chiussi et al. Patent fails to disclose **a congestion control mechanism responding to detected congestion by multiplicatively decreasing the variable injection rate** as recited in claim 2 and **multiplicatively decreasing the variable injection rate in response to the detected congestion** as recited in claim 14. The Examiner submits that these limitations are disclosed in column 4, lines 17-21 and column 4, lines 58-column 5, line 11 of the Chiussi et al Patent. (Office Action, page 3). Applicants can find nothing in the referenced text of the Chiussi et al. Patent that teaches or suggests these limitations. The Chiusssi et al. Patent discloses that the data sources are instructed to either increase their data transfer rate or reduce their data transfer rate. The data sources do not **multiplicatively decrease** the variable injection rate in response to the detected congestion. Further, the Chiussi et al. Patent states that the RM cell contains data transfer rate information that instructs the data source to either increase or decrease its data transfer rate by a specific amount or instructs the data source to operate at a specific data transfer rate. (Column 3, lines 62-65).

In view of the above, the distributed computer system of independent claim 2 and the method of controlling congestion in a distributed computer system of claim 14 is not taught or suggested by the Chiussi et al. Patent. Dependent claims 3-5 and 10-12 further define patentably distinct independent claim 2. Dependent claims 15-17 and 22-24 further define patentably distinct claim 14. Accordingly, dependent claims 3-5, 10-12, 15-17, and 22-24 are also believed to be allowable.

In addition, dependent claim 3, which further defines patentably distinct claim 2, includes the limitation **wherein the variable injection rate (IR) is multiplicatively decreased according to IR(i +1) = IR(i) * 1/F1, wherein F1 is a constant.** The Chiussi et al. Patent fails to teach or suggest this limitation expressed by this equation. Applicants can find nothing in the referenced text of the Chiussi et al. as submitted by the Examiner that teaches or suggests this limitation.

Further, dependent claim 4, which further defines patentably distinct claim 2, includes the limitation **wherein the congestion control mechanism responds to detected subsiding of congestion by multiplicatively increasing the variable injection rate.** As discussed above with reference to claims 2 and 14, the Chiussi et al. Patent only instructs the data source to increase or decrease its data transfer rate or operate at a specific data transfer rate.

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The Chiussi et al. Patent does not disclose **multiplicatively increasing** the variable injection rate.

In addition, dependent claim 5, which further defines patentably distinct claim 2, includes the limitation **wherein the variable injection rate (IR) is multiplicatively increased according to IR(i+1) = IR(i) * F2, wherein F2 is a constant.** The Chiussi et al. Patent fails to teach or suggest this limitation expressed by this equation. Applicants can find nothing in the referenced text of the Chiussi et al. as submitted by the Examiner that teaches or suggests this limitation.

Further, dependent claim 12, which further defines patentably distinct claim 2, includes the limitation **wherein at least one routing device includes a congestion control mechanism responding to detected congestion by dropping frames that are marked droppable for a time period.** The Examiner submits that this limitation is taught by the Chiussi et al. Patent in columns 1, lines 14-54. (Office Action, page 3). Applicants can find nothing in the referenced text of the Chiussi et al. Patent that teaches or suggests this limitation. The referenced text is discussing the prior art and does not mention responding to detected congestion by dropping frames that are marked droppable for a time period.

In addition, dependent claim 15, which further defines patentably distinct claim 14, includes the limitation **wherein multiplicatively decreasing the variable injection rate includes multiplicatively decreasing the variable injection rate (IR) according to IR(i+1) = IR(i) * 1/F1, wherein F1 is a constant.** The Chiussi et al. Patent fails to teach or suggest this limitation expressed by this equation. As discussed above with reference to claim 3, Applicants can find nothing in the referenced text of the Chiussi et al. as submitted by the Examiner that teaches or suggests this limitation.

Further, dependent claim 16, which further defines patentably distinct claim 14, includes the limitation **multiplicatively increasing the variable injection rate in response to the detected subsiding of congestion.** The Chiussi et al. Patent fails to disclose this limitation. As discussed above with reference to claims 2, 4, and 14, the Chiussi et al. Patent only instructs the data source to increase or decrease its data transfer rate or operate at a specific data transfer rate. The Chiussi et al. Patent does not disclose **multiplicatively increasing** the variable injection rate.

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In addition, dependent claim 17, which further defines patentably distinct claim 16, includes the limitation **wherein multiplicatively increasing the variable injection rate includes multiplicatively increasing the variable injection rate (IR) according to IR(i+1) = IR(i) * F2, wherein F2 is a constant.** The Chiussi et al. Patent fails to teach or suggest this limitation expressed by this equation. As discussed above with reference to claim 5, Applicants can find nothing in the referenced text of the Chiussi et al. as submitted by the Examiner that teaches or suggests this limitation.

Further, dependent claim 24, which further defines patentably distinct claim 14, includes the limitation **dropping frames that are marked droppable for a time period in response to the detected congestion.** As discussed above with reference to claim 12, Applicants can find nothing in the referenced text of the Chiussi et al. Patent that teaches or suggests this limitation. The referenced text is discussing the prior art and does not mention responding to detected congestion by dropping frames that are marked droppable for a time period.

In view of the above, Applicants respectfully request that the rejections to claims 2-5, 10-12, 14-17, and 22-24 under 35 U.S.C. §102(b) be withdrawn and that these claims be allowed.

Claim Rejections under 35 U.S.C. § 103

The Examiner rejected claims 6-9, 13, 18-21, and 25 under 35 U.S.C. §103(a) as being unpatentable over the Chiussi Patent in view of Lauck et al., U.S. Patent No. 5,734,825.

Dependent claims 6-9 and 13 further define patentably distinct independent claim 2. Accordingly, dependent claims 6-9 and 13 are also believed to be allowable.

Dependent claims 18-21 and 25 further define patentably distinct independent claim 14. Accordingly, dependent claims 18-21 and 25 are also believed to be allowable.

Therefore, Applicants respectfully request that the rejections to claims 6-9, 13, 18-21, and 25 under 35 U.S.C. §103(a) be withdrawn and that these claims be allowed.

Added Claims

Claim 26 has been added. Applicants believe added claim 26 to be allowable over the art of record.

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CONCLUSION

In view of the above, Applicants respectfully submits that pending claims 2-26 are in form for allowance and are not taught or suggested by the cited references. Therefore, reconsideration and withdrawal of the rejections and allowance of claims 2-26 is respectfully requested.

No fees are required under 37 C.F.R. 1.16(b)(c). However, if such fees are required, the Patent Office is hereby authorized to charge Deposit Account No. 08-2025.

The Examiner is invited to contact the Applicant's representative at the below-listed telephone numbers to facilitate prosecution of this application.

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Any inquiry regarding this Amendment and Response should be directed to either William J. Streeter at Telephone No. (970) 898-3886, Facsimile No. (970) 898-7247 or Patrick G. Billig at Telephone No. (612) 573-2003, Facsimile No. (612) 573-2005. In addition, all correspondence should continue to be directed to the following address:

Hewlett-Packard Company
Intellectual Property Administration
P.O. Box 272400
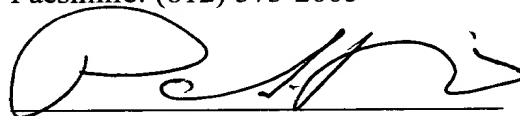Fort Collins, Colorado 80527-2400

Respectfully submitted,

Renato J. Recio et al.,

By their attorneys,

DICKE, BILLIG & CZAJA, PLLC
Fifth Street Towers, Suite 2250
100 South Fifth Street
Minneapolis, MN 55402
Telephone: (612) 573-2003
Facsimile: (612) 573-2005

Date: ___2-14-05___

PGB: kle

Patrick G. Billig
Reg. No. 38,080

CERTIFICATE UNDER 37 C.F.R. 1.8: The undersigned hereby certifies that this paper or papers, as described herein, are being deposited in the United States Postal Service, as first class mail, in an envelope address to: Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this _14_ day of January, 2005.

By_____
Name: Patrick G. Billig

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